

- (a) providing a glue and/or cement binder
- (b) providing a plurality of fiber
- (c) providing a forming system
- (d) securing said plurality of fiber with said glue and/or cement binder in said forming system

Whereby a structure of bound glued and/or cemented fiber is formed.

79. The method of claim 78 further including a wall surfacing material.

**80. A method comprising,**

- (a) providing a binding
- (b) providing a plurality of earth and fiber
- (c) securing said plurality of earth and fiber with said binder

Whereby a structure of bound earth and fiber is made.

81. The method of claim 80 further including a forming system.

**82. A method comprising,**

- (a) providing a plurality of fiber
- (b) providing a weaving device
- (c) weaving said plurality of fiber with said weaving device

Whereby a woven fiber structure is produced.

83. The method of claim 82 further including a wall surfacing material.

84. The method of claim further including means for securely attaching the woven said plurality of fiber to a foundation.

REMARKS- General

**Specification amended for clarity:**

By the above amendment. Applicant has amended the last paragraph on page 17 to remove three sentences that refer to fiber being shipped in bales. These sentences

may cause confusion as to whether bales are used in applicant's method, and the sentences are not otherwise needed.

Claims 1-38 have been rewritten as new claims 39 to 84 to more particularly define the invention in a patentable manner over the cited prior art.

#### **The Objections to the Drawings**

The drawings will be corrected after allowance.

**Claims** 1-3, 6-11, 14, 16-20, 23-28, 31, 33-38, were rejected as unpatentable over Allen.

#### **The Reference and Difference of The Present Invention Thereover.**

Prior to discussing the claims, applicant will first discuss the reference and the general novelty of the present invention and its unobviousness over the reference.

The reference (**Allen patent 5,749,199**) uses stacked straw bales in conjunction with a skeletal framework. Applicant uses no straw bales at all. Allens straw bales 4 and trussing members 17 are combined to form a truss (column 2, lines 32-33). Applicant does not combine straw bales and trussing members to form a truss. Allen's skeletal framework is operatively connected to the bales in the form of teeth 18a, which impale the straw bale (column 4, lines 47-49). Applicant does not use Allen's method of operatively connecting trussing members to straw bales with teeth. Allen's straw bales are supported by rods 20 and these rods 20 are stabilized by trusses 17, cross ties 26, tie straps 28, and shear plates 30 (column 6, lines 61-65). Applicant uses no bales and therefore has no need to support bales with rods. Allens skeletal members, trusses 17, cross-ties 26, tie straps 28, and shear plates, encase

the straw bales in a framework, stabilizing and holding them together (column 2, lines 13-15). Applicant does not encase straw bales. Allen's trussing members 18 also support wall treatments like drywall, plywood, and stucco (column 7, lines 22-25). Allens trussing members 18 are required for the wall finishing system whereas horizontal structural members can be included optionally in the applicant's walls. The present inventions method of building is significantly different from Allen's.

**The Objection of Claim 1 On Allen Is Overcome.**

The last O.A. rejected independent claim 1 on Allen. Old claim 1 has been rewritten as new claims 39, 43, and 45 to more particularly define the invention in a patentable manner over the cited prior art. Applicant requests reconsideration of this rejection, as now applicable to claims 39, 43, and 45 for the following reasons:

Claim 39 Distinguishes itself over Allen under section 102 since it recites

39. A method comprising,

(b) providing a binding

Whereby said binding can bind a structure by securing a fiber and interconnecting the fiber.

The method of the present invention is a binder that secures loose fibrous material whereas the reference constructs with bales. Walls are generally considerably higher and wider than they are thick (depth). Hence building a wall with fibrous material requires securing the fibrous material into a high wide thin form.

Because of the complexity of doing this, builders have previously relied on bales as a starting component. Other elements are then added. For instance builders use components to attach the bales to each other, to structural members, and to wall finishing materials, as is done in the reference.

Originally fiber was baled as an efficient way to package, store, and ship straw. Owing to bales shape, fire resistance, and insulating qualities people began using them to build structures. Building with bales requires they be secured/connected to a foundation, roof, and each other. Connecting bales of straw poses problems structurally. On the one hand when bales are large they have an inherent weakness and instability through the middle. On the other hand when bales are small connecting them all up is inherently structurally challenging. In both cases there are problems with bale joints.

The present invention is a binding method that allows fiber to be formed in the shape of a wall or wall section, while eliminating weaknesses like the above inherent weaknesses of constructing with bales. The present invention also eliminates bale joints and their problems.

The references use of bales creates other difficulties. Bales can be an obstacle to windows, doors, electric, plumbing, and other items installed in a wall. This requires cutting and drilling of bales. The present invention has its own methods to install these items. Depending on their particular attributes these items can be included before, during, or after the binding, often saving time and labor.

The present invention has eliminated using fiber bales. To do this the invention uses a new method to secure fiber that connects/blinds the fibrous material across its thinnest/smallest dimension, usually its depth, giving the fibrous wall structural integrity in all dimensions. The apparatus, material, or substance used to internally secure the fibrous material across its smallest dimension is a basic component of the binding.

**The Novel Physical Features Of Claim 39 Produce New and Unexpected Results and Hence Are Unobvious and Patentable Over the Reference Under Section 103.**

These distinctions are submitted to be of patentable merit under section 103 because of new and unexpected results, such as, the ability of applicant's method to bind fibrous material in a structural stronger way that eliminates the use of baled straw. Omitting bales allows much better control over the quality of the wall surface and wall thickness. There are also no joints between bales that need filling. Problems with irregular sized bales are eliminated, and bales no longer need to be custom cut or drilled to admit windows, doors, electric, and plumbing. Thus the applicant's method solves many long felt and long unsolved problems associated with using bales.

The applicants method also allows other advantages not possibly using bales like: the making of a monolithic wall, which is inherently stronger: the ability to include other structural elements in its forming and binding process: the inclusion of non-toxic fire and mold retardants which can increase the structures longevity: variation in the arrangement of fibers and the combination of different fibers which can improve structural characteristics: woven fibers can be used making use of the fibers high tensile strength: continuous monolithic structure corners and intersections which improve structural strength: and the time and labor to plaster is reduced.

**The building method of this application has received recognition in its field.**

The applicant was asked to present this building method at the California Straw Building Association Spring Conference 2005, where it was well received. In addition New College University of California, which has a green building program at its Santa Rosa campus, has loaned the applicant space at their facility to continue development of this building method. One building that uses this method, as illustrated in applicants Figs. 2ABC, and 4A, was completed in fall 2004, and a garden wall using a bound earth/straw mixture spring 2005. At the New College facility, the applicant has built a machine that compresses and binds straw panels

with a base coat of plaster. These panels are being used to wrap an existing structure providing additional insulation and a new exterior wall surfacing. Plans for a new structure that will also utilize these panels are in the works.

**The Dependent Claims 40 to 55 Are A Fortiori Patentable over Allen**

New dependent claims 40 to 55 incorporate all the subject matter of claim 39 and add additional subject matter which makes them A Fortiori and independently patentable over the reference.

Claim 40 adds said binding has a self locking component. The present invention includes a self locking component, which connects binding components together. Connecting binding components together is different from Allen's trussing members and their teeth that poke into straw bales to connect them together. Hence applicants self locking components solve a different problem than the reference. The applicants self locking component facilitates making binding to binding connections. The applicant has blazed a new path rather than follow one.

Claim 41 adds said binding further includes shear force transfer devices. Allen's cross ties are placed between bales, whereas the present invention uses no bales and its interconnections extend through the fibrous materials. Because bales are an obstruction, extensive modifications would have to be done to the references method in order for it to accommodate the present inventions shear force transfer devices. The inventor has blazed a new path rather than follow an existing one.

Claim 42, old claim 13 was rejected under section 103 on Allen and Eichinger. Remarks concerning new claim 42 are located below, after the section 102 rejections.

Claim 43 adds including a plurality of fiber. This claim omits the mention of baled straw or any other material that has been baled. Under section 102 this claim clearly distinguishes itself over Allen who calls for the use of bales, does not suggest using anything other than bales, and who's method will not work without bales.

Claim 44 adds said binding is said plurality of fiber woven together to be their own binder. In this claim the applicant binds fibers by weaving them into the form of a wall. This eliminates the need to have any other binder material. The straw in essence becomes its own binder, though other binders can be used with it. The last O.A. stated "straw fibers ... are by nature irregular in shape such that adjacent fibers are somewhat interwoven to be their own binder" this is so, but the present invention is concerned with actively interweaving fibers, to greatly increase their interconnections to each other. This differs significantly in its method and in the resulting strength of a wall produced when compared to the incidental intermeshing of fibers the last O.A. referred to.

The weaving of the fibers utilizes the fibers inherently strong tensile strength. The results achieved are new and superior because of the wall strength achieved. Monolithic wall sections can be woven of fiber that can be erected quickly. Because of a woven walls ability to stay together transporting such a wall is simplified. Woven walls can also be cut and drilled much easier than a bale because the fibers won't fall apart. The inventor has blazed a new path rather than follow an existing one.

Claim 45 adds including a forming system. Allen does not anticipate using his trussing member 18, rod 20, or his finishing material as a form for shaping loose materials. Allen's trussing member 18 with teeth 18a will not make an operative connection to loose materials. Hence loose materials cannot be the web of Allen's

trusses. Likewise Allen's rods 20 are designed to support straw bales 4 and will not support loose material. Furthermore as Allen connects finishing materials to trussing members 18, and trussing members 18 will not work in conjunction with loose materials, Allen's finishing materials also will not function with loose materials as the present invention does. The applicants forming system is a new principle of operation that allows one to build with loose materials. The applicant has blazed a new trail rather than follow an existing one.

Claim 46 adds applying a wall surfacing material. A wall surfacing material is typically included in a building system.

Claim 47 adds wherein the application of said wall surfacing material is included in said forming system. The reference teaches applying a finishing material to an existing wall and it lacks any suggestion that it should be modified in a manner to form the walls also. The forming system the present invention refers to is a forming system that shapes loose material into the shape of the structure and is used here to also apply the plaster. Hence the invention solves a different problem than the reference. The invention by including the wall surfacing material in the forming of the loose material process saves time and labor, especially when the wall finishing material is plaster because the forms can also act as a mold. A less time consuming way to apply plaster has been a long time need. Using forms with plaster is also an improved way to achieve flat or textured walls, which is another long standing need.

The drawing for new claim 48, formerly old claim 4, will be corrected after allowance.

The drawing for new claim 49, formerly old claim 5, will be corrected after allowance.



Claim 50 adds urging said plurality of fiber and said surfacing material together. This distinguishes itself from Allen because Allen uses straw bales and the present invention urges/compresses loose straw. Allen applies or attaches finishing materials without the aid of a compressing and forming system like that of the present invention. Nor does Allen suggest doing this.

The present inventions method of urging/compressing surfacing material and fiber together simultaneously is a new method that saves labor. When plaster is used it creates an excellent bond between plaster, binding, and fiber. Other Types of wall surfacing materials can also be used in combination with compression, provided they withstand the forces. More labor can be saved when the forming system is also part of the wall texturing.

The prior art lacks any suggestion that the reference should be modified in a manner so that it would combine compression of fiber, forming the wall, applying a plaster or other wall surfacing material, and texturing a wall surface. The applicant has blazed a new path rather than follow an existing one.

Claim 51 adds said forming system further includes the process of forming and binding said plurality of fiber in consecutive layers. Allen constructs by laying up bales within a skeletal framework and then applying a finishing material. The present invention constructs with loose materials, while Allen's skeletal framework and finishing materials cannot function with loose materials. One way to build with the present invention is to build in layers. When a wall is erected the present inventions method of building in layers is more stable than bales. The preferred intermingling of fibers between layers adds greater structural strength. The layers of bales in Allen's method cannot be actively intermingled.

Claim 52 adds urging said plurality of fiber on at least one surface to compress said plurality of fiber. Allen does not teach compression of non-baled loose fibrous materials like the present invention does. Allen's rods are to deal with bales settling (creep). The present invention does not use bales and Allen does not suggest any modifications to use loose material. The present inventions compression of loose fibrous materials to form a wall utilizes a new principle of operation. This solves problems associated with bale construction such as filling bale joints, stabilizing bales, and achieving a flat surface.

The drawing for new claim 53, formerly old claim 12, will be corrected after allowance.

Claim 54 adds an anchor in the foundation by which said urging system connects to. This claim is one of the many possible building features referred to in old claim 16. Allen does not teach compression of loose fiber as the present invention does. Allen uses anchors as connection points to rods, which support his bales. Hence Allen's anchors perform a different operation. The present invention is a new principle of operation. Using foundation anchors as connection points for compression equipment makes use of a sturdy attachment point that can also serve as a wall anchor. When these anchors are located central to the wall, alignment of compression equipment is simplified.

Claim 55 adds equipment that constructs panels of said plurality of fiber secured by said binding. This claim is added to more clearly define a ramification of claim 52 above. Producing panels efficiently lowers expenses and makes the present invention more accessible to contractors and the home owner/builder.

**The Objection of Claim 56 On Allen Is Overcome.**

The last O.A. rejected independent claim 18 on Allen. Old claim 18 has been rewritten as new claims 56 and 61 to more particularly define the invention in a patentable manner over the cited prior art. Applicant requests reconsideration of this rejection, as now applicable to claims 56 and 61, for the following reasons:

Claim 56 Distinguishes itself over Allen under section 102 since it recites

56. A structural system comprising,

(a) a plurality of fiber

(b) means for binding said plurality of fiber into a structure by securing said plurality of fiber and interconnecting said plurality of fiber.

The invention is a means for binding that secures loose fibrous material whereas the reference constructs with bales. Walls are generally considerably higher and wider than they are thick (depth). Hence building a wall with fibrous material requires securing the fibrous material into a high wide thin form.

Because of the complexity of doing this, builders have previously relied on bales as a starting component. Other elements are then added. For instance builders use components to attach the bales to each other, structural members, and wall finishing materials, as is done in the reference.

Originally fiber was baled as an efficient way to package, store, and ship straw.

Owing to bales shape, fire resistance, and insulating qualities people began using them to build structures. Building with bales requires they be secured/connected to a foundation, roof, and each other. Connecting bales of straw poses problems structurally. On the one hand when bales are large they have an inherent weakness

and instability through the middle. On the other hand when bales are small connecting them all up is inherently structurally challenging. In both cases there are problems with bale joints.

The present invention is a means for binding that allows fiber to be formed in the shape of a wall or wall section, while eliminating weaknesses like the above inherent weaknesses of constructing with bales. The present invention also eliminates bale joints and their problems.

The references use of bales creates other difficulties. Bales can be an obstacle to windows, doors, electric, plumbing, and other items installed in a wall. This requires cutting and drilling of bales. The present invention has its own methods to install these items. Depending on their particular attributes these items can be included before, during, or after the binding, often saving time and labor.

The present invention has eliminated using fiber bales. To do this the invention uses a new method for securing fiber that connects/binds the fibrous material across its thinnest/smallest dimension, usually its depth, giving the fibrous wall structural integrity in all dimensions. The apparatus, material, or substance used to internally secure the fibrous material across its smallest dimension is a basic component of the binding.

**The Novel Physical Features Of Claim 56 Produce New and Unexpected Results and Hence Are Unobvious and Patentable Over the Reference Under Section 103.**

These distinctions are submitted to be of patentable merit under section 103 because of new and unexpected results, such as, the ability of applicant's method to bind fibrous material in a structural stronger way that eliminates the use of baled straw. Omitting bales allows much better control over the quality of the wall surface and wall thickness. There are also no joints between bales that need filling. Problems

with Irregular sized bales are eliminated, and bales no longer need to be custom cut or drilled to admit windows, doors, electric, and plumbing. Thus the applicant's method solves many long felt and long unsolved problems associated with using bales.

The applicants method also allows other advantages not possibly using bales like: the making of a monolithic wall, which is inherently stronger: the ability to include other structural elements in its forming and binding process: the inclusion of non-toxic fire and mold retardants which can increase the structures longevity: variation in the arrangement of fibers and the combination of different fibers which can improve structural characteristics: woven fibers can be used making use of the fibers high tensile strength: continuous monolithic structure corners and intersections which improve structural strength: and the time and labor to plaster is reduced.

**The Dependent Claims 57 to 71 Are A Fortiori Patentable over Allen**

New dependent claims 57 to 71 incorporate all the subject matter of claim 56 and add additional subject matter which makes them A Fortiori and Independently patentable over the reference.

Claim 57 adds said means for binding has a self locking component. The present invention includes a self locking component, which connects binding components together. Connecting binding components together is different from Allen's trussing members and their teeth that poke into straw bales to connect them together. Hence applicants self locking components solve a different problem than the reference. The applicants self locking component facilitates making binding to binding connections. The applicant has blazed a new path rather than follow an existing one.

Claim 58 adds said means for binding further includes means for transferring shear forces. Allen's cross ties are placed between bales, whereas the present invention uses no bales and its interconnections extend through the fibrous materials. Because bales are an obstruction, extensive modifications would have to be done to the references method in order for it to accommodate the present inventions shear force transfer devices. The Inventor has blazed a new path rather than follow an existing one.

Claim 59, old claim 30 was rejected under section 103 on Allen and Eichinger. Remarks concerning new claim 59 are located below, after the section 102 rejections.

Claim 60 adds said means for binding comprises said plurality of fiber woven together so that the fibers secure each other. In this claim the applicant binds fibers by weaving them into the form of a wall. This eliminates the need to have any other binder material. The straw in essence becomes its own binder, though other binders can be used with it. The last O.A. stated "straw fibers ... are by nature irregular in shape such that adjacent fibers are somewhat interwoven to be their own binder" this is so, but the present invention is concerned with actively interweaving fibers, to greatly increase their interconnections to each other. This differs significantly in its method and in the resulting strength of a wall produced when compared to the incidental intermeshing of fibers the last O.A. referred to.

The weaving of the fibers utilizes the fibers inherently strong tensile strength. The results achieved are new and superior because of the wall strength achieved.

Monolithic wall sections can be woven of fiber that can be erected quickly. Because of a woven walls ability to stay together transporting such a wall is simplified. Woven

walls can also be cut and drilled much easier than a bale because the fibers won't fall apart. The inventor has blazed a new path rather than follow an existing one.

Claim 61 adds including means for forming a structure of said plurality of fiber and said means for binding. Allen does not anticipate using trussing member 18, rod 20, or finishing material as a form for shaping loose materials. Allen's trussing member 18 with teeth 18a will not make an operative connection to loose materials. Hence loose materials cannot be the web of Allen's trusses. Likewise Allen's rods 20 are designed to support straw bales 4 and will not support loose material. Furthermore as Allen connects the finishing materials to trussing members 18, and trussing members 18 will not work in conjunction with loose materials, Allen's finishing materials also will not function with loose materials as the present invention does. The applicants forming system is a new principle of operation that allows one to build with loose materials. The applicant has blazed a new trail rather than follow an existing one.

Claim 62 adds a wall surfacing material and means for applying said wall surfacing material to said plurality of fiber. A wall surfacing material is typically included in a building system.

Claim 63 adds wherein the application of said wall surfacing material is included in said means for forming a structure. The reference teaches applying a finishing material to an existing wall and it lacks any suggestion that it should be modified in a manner to form the walls also. The forming system the present invention refers to is a forming system that shapes loose material into the shape of the structure and is used here to also apply the plaster. Hence the invention solves a different problem than the reference. The invention by including the wall surfacing material in the

forming of the loose material process saves time and labor, especially when the wall finishing material is plaster because the forms can also act as a mold. A less time consuming way to apply plaster has been a long time need. Using forms with plaster is also an improved way to achieve flat or textured walls, which is another long standing need.

The drawing for new claim 64, formerly old claim 21, will be corrected after allowance.

The drawing for new claim 65, formerly old claim 22, will be corrected after allowance.

Claim 66 adds means for urging said plurality of fiber and said surfacing material together. This distinguishes itself from Allen because Allen uses straw bales and the present invention urges/compresses loose straw. Allen applies or attaches finishing materials without the aid of a compressing and forming system like that of the present invention. Nor does Allen suggest doing this.

The present Inventions method of urging/compressing surfacing material and fiber together simultaneously is a new method that saves labor. When plaster is used it creates an excellent bond between plaster, binding, and fiber. Other Types of wall surfacing materials can also be used in combination with compression, provided they withstand the forces. More labor can be saved when the forming system is also part of the wall texturing.

The prior art lacks any suggestion that the reference should be modified in a manner so that it would combine compression of fiber, forming the wall, applying a plaster or other wall surfacing material, and texturing a wall surface. The applicant has blazed a new path rather than follow an existing one.



Claim 67 adds said means for forming a structure further includes binding said plurality of fiber in consecutive layers. Allen constructs by laying up bales within a skeletal framework and then applying a finishing material. The present invention constructs with loose materials, while Allen's skeletal framework and finishing materials cannot function with loose materials. One way to build with the present invention is to build in layers. When a wall is erected the present inventions method of building in layers is more stable then bales. The preferred intermingling of fibers between layers adds greater structural strength. The layers of bales in Allen's method cannot be actively intermingled.

Claim 68 Adds means for urging said plurality of fiber on at least one surface to compress said plurality of fiber. Allen does not teach compression of non-baled loose fibrous materials like the present invention does. Allen's rods are to deal with bales settling (creep). The present invention does not use bales and Allen does not suggest any modifications to use loose material. The present inventions compression of loose fibrous materials to form a wall utilizes a new principle of operation. This solves problems associated with bale construction such as filling bale joints, stabilizing bales, and achieving a flat surface.

The drawing for new claim 69, formerly old claim 29, will be corrected after allowance.

Claim 70 adds means for anchoring a plurality of fiber secured by said means for binding to a foundation. This is one of the many possible building features referred to in old claim 33. Anchoring the structure to the foundation is a necessity. Allen does not teach compression of loose fiber as the present invention does. Allen uses

anchors as connection points to rods, which support his bales. Hence Allen's anchors perform a different operation.

Claim 71 adds means for constructing panels of said plurality of fiber secured by said means for binding. This claim is added to more clearly define a ramification of claim 68 above. Producing panels efficiently lowers expenses and makes the present invention more accessible to contractors and the home owner/builder.

**Another preferred embodiment, old claim 35, is now new claims 72 and 73.**

To more clearly define patentability, old claim 35, is now new claims 72 and 73.

Independent claim 72 Distinguishes itself over Allen under section 102 since it recites:

72. A method comprising,

- (c) providing a binder frame assembly
- (d) erecting said binder frame assembly

Whereby a supporting framework for a wall is erected.

Allen constructs trusses from trussing members and straw bales, which the present invention does not do. Allen then builds a wall using these trusses and a skeletal framework, another operation that the present invention does not do. Having a wall of straw bales, trussing members, and a skeletal framework, Allen then attaches a finishing material. Allen lacks any suggestion that the straw bales should be omitted. The straw bales are required in Allen's wall in order to apply a plaster. Whereas the binder frame assembly of the present invention requires no bales or any other filler to admit a plaster.

Allen uses straw bales and trussing members to build a wall, and then applies a finishing material to it. The present invention provides a binder frame assembly that

when erected serves as a support structure, which can admit a plaster and/or be filled with a wall filler material.

**Also applicant submits that the novel features of claim 72 are also unobvious and hence patentable under section 103 since they produce new and unexpected results over Allen.**

This is a new principle of operation that serves a long felt, long existing need to erect a wall without the typical extensive framework and labor usually required. For instance, one example of making an interior partition wall is to fasten a bottom and top plate to the floor and ceiling respectively. Then attach the binder frame assembly to these plates. This provides the basic support framework. The binder frame assembly can be factory made as a single unit or assembled components.

The idea is that it be easy to make and handy to use. The binder can come in sheets or a roll from which a piece is cut and attached to the plates. It could also be several pieces that preferably are assembled quickly. It can stand alone with rigid members that allow it to stand up by itself. In this manner an entire building could be erected by first standing up the binder frame assembly. Using a binder frame assembly like this allows a great deal of versatility as the binder frame assembly can be designed and built to fill many different structural needs. The binder frame assembly can also be designed to work with many different filler materials. The design for a binder frame assembly that was designed to be filled with a soil filler would probably be different than a binder frame assembly used with a foam filler material. The applicant has blazed a new path rather than follow an existing one.

**The Dependent Claims 73 and 74 Are A Fortiori Patentable over Allen**

New dependent claims 73 and 74 incorporate all the subject matter of claim 72 and add additional subject matter which makes them A Fortiori and independently patentable over the reference.

Claim 73 Adds a wall surfacing material. A wall surfacing material is typically included in a building system.

Claim 74 Adds a wall filler material. A wall filler material can be included with the binder frame assembly if desired. The references building method starts with bales, then trusses and additional hardware are attached to the bales. The present invention first erects the binder frame assembly. Then a wall filler material is inserted into the binder frame assembly. The present invention uses loose materials, this differs significantly from the references use of bales. The present invention utilizes a new principle of operation that can erect a wall more efficiently. The applicant has blazed a new path rather than follow an existing one.

**Old claim 37 is now new claims 75 and 76.**

To more clearly define patentability, old claim 37, is now new claims 75 and 76. Independent claim 75 Distinguishes itself over Allen under section 102 since it recites:

75. A wall system comprising,

- (a) a binder frame assembly
- (b) means for erecting said binder frame assembly

Allen constructs trusses from trussing members and straw bales, which the present invention does not do. Allen then builds a wall using these trusses and a skeletal

framework, another operation that the present invention does not do. Having a wall of straw bales, trussing members, and a skeletal framework, Allen then attaches a finishing material. Allen lacks any suggestion that the straw bales should be omitted. The straw bales are required in Allen's wall in order to apply a plaster. Whereas the binder frame assembly of the present invention requires no bales or any other filler to admit a plaster.

Allen uses straw bales and trussing members to build a wall that he then applies a finishing material to. The present invention provides a binder frame assembly, which when erected serves as a support structure, which can admit a plaster and/or be filled with a wall filler material.

**Also applicant submits that the novel features of claim 75 are also unobvious and hence patentable under section 103 since they produce new and unexpected results over Allen.**

This is a new principle of operation that serves a long felt, long existing need to erect a wall without the typical extensive framework and labor usually required. For instance, one example of making an interior partition wall is to fasten a bottom and top plate to the floor and ceiling respectively. Then attach the binder frame assembly to these plates. This provides the basic support framework. The binder frame assembly can be factory made as a single unit or assembled components.

The idea is that it be easy to make and handy to use. The binder can come in sheets or a roll from which a piece is cut and attached to the plates. It could also be several pieces that preferably are assembled quickly. It can stand alone with rigid members that allow it to stand up by itself. In this manner an entire building could be erected by first standing up the binder frame assembly. Using a binder frame assembly like this allows a great deal of versatility as the binder frame assembly can be designed and built to fill many different structural needs. The binder frame assembly can also

be designed to work with many different filler materials. The design for a binder frame assembly that was designed to be filled with a soil filler would probably be different than a binder frame assembly used with a foam filler material. The applicant has blazed a new path rather than follow an existing one.

**The Dependent Claims 76 and 77 Are A Fortiori Patentable over Allen**

New dependent claims 76 and 77 incorporate all the subject matter of claim 75 and add additional subject matter which makes them A Fortiori and independently patentable over the reference.

Claim 76 adds a wall surfacing material. A wall surfacing material is typically included in a building system.

Claim 77 adds a wall filler material. A wall filler material can be included with the binder frame assembly if desired. The references building method starts with bales, then trusses and additional hardware are attached to the bales. The present invention first erects the binder frame assembly. Then a wall filler material is inserted into the binder frame assembly. The present invention uses loose materials and this differs significantly from the references use of bales. The present invention utilizes a new principle of operation that can erect a wall more efficiently. The applicant has blazed a new path rather than follow an existing one.

**Claims 13, 15, 30 32 were rejected as unpatentable over Allen in view of Eichinger.**

**The Rejection Of Claims 13,15,30,32 On Allen and Eichinger is Overcome**

The last O.A. rejected claims 13,15,30,32 on Allen and Eichinger. Claims 13,15,30,32 have been rewritten as new claims 42,59,78 to define patentability over these references, and any combination thereof. Applicant requests reconsideration of this rejection, as now applicable to new claims 42,59,78, for the following reasons.

- (1) There is no justification, in Allen and Eichinger, or in any other prior art separate from applicants' disclosure, which suggests that these references be combined, much less be combined in the manner proposed.
- (2) Each reference is complete and functional in itself, so there would be no reason to use parts from or add or substitute parts to any reference.
- (3) Eichinger is from a very different technical field than that of the invention- that is, it's "nonanalogous art."
- (4) It would be necessary to make modifications, not taught in the prior art, in order to combine the references in the manner suggested.
- (5) The result achieved by the invention is greater than the respective results of the references.
- (6) The combination suggested requires a series of separate, awkward combinative steps that are too involved to be considered obvious.

**The References and Differences Of The Present Invention Thereover**

Prior to discussing the claims and the above six points, applicants will first discuss the references and the general novelty of the present invention and the unobviousness over the references.

**Allen** uses stacked straw bales in conjunction with a skeletal framework. Applicant uses no straw bales at all. Allen's straw bales 4 and trussing members 17 are combined to form a truss, two trussing members to one or more bales (column 2,

lines 32-35). Applicant does not combine straw bales and trussing members to form a truss. Allen's skeletal framework is operatively connected to the bales in the form of teeth 18a, which impale the straw bale (column 4, lines 47-49). Applicant does not use Allen's method of operatively connecting trussing members to straw bales with teeth. Allen's straw bales are supported by rods 20 and these rods 20 are stabilized by trusses 17, cross ties 26, tie straps 28, and shear plates 30 (column 6, lines 61-65). Applicant uses no bales and therefore has no need to support bales with rods. Allen's trussing members 18 also support wall treatments like drywall, plywood, and stucco (column 7, lines 22-25). Allen's trussing members 18 are required for his wall finishing system whereas horizontal structural members can be included optionally in the applicant's walls. Allen does not suggest glue and/or cement, while applicant does. The present inventions method of building is significantly different from Allen's.

**Elchinger** constructs a building block for children's toy or furniture for children made of organic material. Compressed fibers are glued together. The block or plate is covered in a lacquer. Toys and furniture for children is a different field from that of the present invention.

The last O.A. notes that Allen's system does the following;

- (1) creates trusses from trussing members and bales
- (2) trussing members span the wall, two trussing members to one are more bales
- (3) teeth like projections from the trussing members into the bales provide an interactive connection

However these are quite different from the applicant's method. Allen's straw bales and trussing members are combined to form a truss, two trussing members to one



or more bales. Applicant does not use straw bales nor does applicant combine straw bales and trussing members to form a truss. Allen does not have the capability to work with loose fiber like the present invention does. Allen's skeletal framework is operatively connected to the bales in the form of teeth, which impale the straw bales. Applicant does not use Allen's method of operatively connecting trussing members to straw bales with teeth.

With regard to modifying Allen's trusses with glue, a number of awkward steps are required. Allen provides no way to form straw, which is required to make glue/straw blocks/bales. Nor does Allen suggest making any equipment to make glue/straw blocks. Even if Allen did make glue/straw blocks it would still be different from the present invention, which does not use any blocks or bales.

Another awkward step Allen needs to accomplish is gluing the trusses to the glue/straw blocks. That is, after lining the row of blocks up, some method of clamping the trussing members to the glue/straw blocks is necessary until the glue between the trussing members and glue/straw blocks is dry. The clamping problem gets even more difficult when the next layer of blocks is stacked on these trussing members. In the present invention if a support member is included in the forming and binding process, and the glue used is compatible with the support member, the glue will connect them. No additional clamping would be necessary. Given the multiplicity of steps and the amount and complexity of equipment required to form glue/straw blocks, and then to clamp Allen's trussing members to his glue/straw blocks, it would be unobvious to one in the art.

Even if they did, it would still be different from the present invention, which uses no glue/straw blocks, or trussing members like Allen. Nor does the present invention glue trussing members to glue/straw blocks. Furthermore Allen's using glue/straw blocks would still pose problems with glue/straw block joints. The present invention does not have glue/straw block joints.

**The Dependent Claim 79 Is A Fortiori Patentable over Allen and Eichner**

New dependent claim 79 incorporates all the subject matter of claim 78 and adds additional subject matter which makes them A Fortiori and independently patentable over the reference.

Claim 79 adds a wall surfacing material. A wall surfacing material is typically included in a building system.

Independent claim 80 recites:

80. A method comprising,

(d) providing a binding

(e) providing a plurality of earth and fiber

(f) securing said plurality of earth and fiber with said binder

Whereby a structure of bound earth and fiber is made.

New claims 80 and 81 replace whereby phrases that were in old claims 1 and 18.

These new claims 80 and 81 are added to more clearly define patentability over the prior art.

Current methods of building with earth and fiber like adobe and cob often have insufficient tensile strength. The fiber in adobe blocks provide some tensile strength but when the adobe blocks are mortared together most of that tensile strength is lost. Cob construction places an earth and straw mixture directly on the wall. If care is taken to make sure the fibers intermesh, then the fibers tensile strength is utilized. Even so it's difficult to be certain the fibers are intermeshed well, casting doubt on a cob structures strength. In addition, more tensile strength may be desired. The binder method of the present invention can provide the tensile strength

needed to make a structure safe. The binding can also facilitate the anchoring of an earth and fiber wall, and provide a mesh or net for plaster application. The invention has blazed a new path rather than follow an existing one.

**The Dependent Claim 81 Is A Fortiori Patentable**

New dependent claim 81 incorporates all the subject matter of claim 80 and adds additional subject matter that makes it A Fortiori.

Claim 81 adds including a forming system. The applicants forming system is a new principle of operation that allows one to build more efficiently with loose materials. The applicant has blazed a new trail rather than follow an existing one.

Independent claim 82 recites:

82. A method comprising,

- (d) providing a plurality of fiber
- (e) providing a weaving device
- (f) weaving said plurality of fiber with said weaving device

Whereby a woven fiber structure is produced.

New claims 82,83, and 84 comprise the subject matter of old claims 10 and 27.

Claim 82 has been rewritten in independent form, and claims 83 and 84 have been rewritten in dependent form, to more clearly define patentability over the prior art.

In this claim the applicant binds fibers by weaving them into the form of a wall or panel. This eliminates the need to have any other binder material. The straw in essence becomes its own binder, though other binders can be used with it. The last O.A. stated "straw fibers ... are by nature irregular in shape such that adjacent fibers are somewhat interwoven to be their own binder" this is so, but the present

Invention is concerned with actively interweaving fibers, to greatly increase their interconnections to each other. This differs significantly in its method and in the resulting strength of a wall produced when compared to the incidental intermeshing of fibers, the last O.A. referred to.

The weaving of the fibers utilizes the fibers inherently strong tensile strength. The results achieved are new and superior because of the wall strength achieved.

Monolithic wall sections can be woven of fiber that can be erected quickly. Because of a woven wall's ability to stay together transporting such a wall is simplified. Woven walls can also be cut and drilled much easier than a bale because the fibers won't fall apart. The inventor has blazed a new path rather than follow an existing one.

#### **The Dependent Claims 83 and 84 Are A Fortiori Patentable**

New dependent claims 83 and 84 incorporate all the subject matter of claim 82 and adds additional subject matter which makes them A Fortiori.

Claim 83 adds a wall surfacing material. A wall surfacing material is typically included in a building system.

Claim 84 adds means for securely attaching the woven said plurality of fiber to a foundation. Anchoring a woven fiber wall is a structural necessity.

#### **Non-Applied Reference.**

Applicant has reviewed non-applied reference, Gard U.S. Patent 5,937,588, and it does not show the present invention or render it obvious.

**Conclusion**

For all of the above reasons, applicant submits that the specification and claims are now in proper form, and that the claims all define patentably over the prior art.

Therefore applicant submits that this application is now in condition for allowance, which applicant respectfully solicits.

**Conditional Request For Constructive Assistance**

Applicant has amended the specification and claims of this application so they are proper, definite, and define novel structure which is also unobvious. If for any reason this application is not believed to be in condition for allowance, applicant respectfully requests the constructive assistance and suggestions of the Examiner pursuant to M.P.E.P. section 2173.02 and section 707.07(j) in order that the undersigned can place this application in allowable condition as soon as possible and without the need for further proceedings.

Very Respectively,

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